



STATE OF MICHIGAN  
DEPARTMENT OF EDUCATION  
LANSING



JENNIFER M. GRANHOLM  
GOVERNOR


MICHAEL P. FLANAGAN  
SUPERINTENDENT OF  
PUBLIC INSTRUCTION

October 3, 2006

**REVISED**

**MEMORANDUM**

TO: State Board of Education

FROM: Michael P. Flanagan, Chairman 

SUBJECT: Approval of High School Content Expectations in Science

At the September 12, 2006 State Board of Education meeting, the State Board delayed action of the High School Content Expectations in Science in order to provide an opportunity for legislative input, as required by state law, and to develop a system for Legislative input in future curriculum documents.

Attached is an analysis prepared by Jeremy Hughes, Chief Academic Office/Deputy Superintendent, in response to legislative input forwarded by Representative Brian Palmer, Chair of the House Education Committee, in a letter dated September 26, 2006.

If the State Board chooses to accept the recommendation from the House Education Committee related to Point #1, the Department can amend the small *Course/Credit Requirements* notebook with relative ease.

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**REVISED**

**TO:** Mike Flanagan, Superintendent

**FROM:** Jeremy M. Hughes, Ph.D.  
Deputy Superintendent/Chief Academic Officer

**DATE:** October 3, 2006

**SUBJ: LEGISLATIVE INPUT TO HIGH SCHOOL  
SCIENCE**

Staff have reviewed the September 26, 2006 letter from Representative Brian Palmer, Chair of the House Education Committee. In our analysis, the letter makes three major points.

Point # 1 - In paragraph 4 on page 1, the letter expresses support for the "preamble" language in the Science section of the *High School Content Expectations* (large notebook), which encourages science teachers to emphasize critical thinking, scientific inquiry, and the use of relevant scientific data to assess the validity of scientific theories. The letter said that this emphasis seemed lacking in the specific *Course/Credit Requirements* (small notebook).

Point # 2 - In paragraph 3 on page 2, the letter implies that when we ask students to "explain how" or "explain why" we are automatically considering as true whatever it is we are asking them to explain. The suggestion is made that we should change these words to such things as "critique whether" or "evaluate how."

Terms such as "explain how" and "explain why" already are sufficiently used introductions to specific content expectations, many if not most of which are indeed unquestioned truths, for example:

L2.p4B – Explain how an organism obtains energy from the food it consumes.

B2.1d– Describe how, through cell division, cells can become specialized for specific function.

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Point # 3 – In the last paragraph on page 2, the letter expresses disappointment that the science content expectations had not yet been circulated for NAEP (National Assessment of Educational Progress) compliance. Alignment with NAEP science expectations was on the mind of the science work group from the very beginning. Professor Andy Anderson, of Michigan State University, who chaired the science working group, is on the NAEP Science Standing Committee, was a member of the NAEP Science Framework Planning Committee, and consistently spoke to and monitored the alignment with NAEP.

The alignment between the high school science expectations with NAEP also has been favorably reviewed by Sharif Shakrani, former Deputy Executive Director of the National Assessment Governing Board (NAGB), which governs the NAEP program, and now Co-Director of The Education Policy Center at Michigan State University.

MDE staff believes this concern was taken into account from the very beginning and that there is good alignment between the final, recommended Michigan science content expectations and those of NAEP.